**Lesson Plan Template**

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| **Name:** | | **310** | | |  | **Course:** | | Earth Science | | |  | **Grade:** | 8 |
| **Unit:** | | Oceanography | | | | | | | | | | | |
| **Big Idea:** | | Density differences can cause formation of layers in fluids | | | | | | | | | | | |
| **Subconcept:** | | Use observations and models to defend a scientific argument | | | | | | | | | | | |
| **Literacy Strategy(s):** | | | Silent discussion, writing lab report | | | | | | | | | | |
| **Lesson:** | | Follow-up to lab experience on different water bodies meeting | | | | |  | | **Date Taught:** | May 3, 2010 | | | |
| **Learning Objective(s):** | | | | | | | | | | | | | |
|  | Students will be able to | | | Use observations to defend a scientific argument | | | | | | | | | |
|  | Students will be able to | | | Use a model to defend a scientific argument | | | | | | | | | |
| **Idaho Standards (or National Standards if no Idaho Standards exist):** | | | | | | | | | | | | | |
| **Earth Science Standard 1 Goal 1.2.1, 1.2.2 1.2.3; Goal 1.3.2; Goal 1.6.6\_** | | | | | | | | | | | | | |

**Detailed Description of Lesson:**

This lesson began with a journal entry with questions relating to the observations made on Friday while carrying out the lab experience portion of this unit. The questions were: 1)What surprised you as you made your observations of the currents Friday? 2)How did your observations support or not support your hypothesis? 3)How do you explain your observations? During the journal time another model of Friday’s activity was set up to refresh the memories of the students who were present on Friday and to allow those who were absent to see what was done. This allowed better participation in the silent discussion of all students present in class on Monday. After students had an opportunity to answer the questions on their own, we went over the answers as class and discussed other questions as students brought them up. Following this discussion, students were directed to think about what they observed and use those observations to support/explain their answers during the silent discussion. Following the silent discussion, students got back together with their partners from Friday to complete the analysis and conclusion of their lab reports.

**Handouts:**

-“Mini Lab Report Directions” were submitted to the MOODLE site on Thursday, May 6

-the following were the questions used for the silent discussion:

\*Where could water bodies of different density and salinity meet in the “real world?”

\*What else, besides salinity differences, could cause layering in the oceans?

\*If two bodies of water meet and one has a low amount of salt and the other has a lot, then the one with the most salt will have better density because the salt water is dense enough which makes things float.

\*If two bodies of water meet where one is denser than another, then the less dense one will rise to the top because it’s less heavy.

\*If two bodies of water meet then the one with a lower density will sink because things with lower density sink under ones with a higher density.

\*The final prompt was a sketch of the experimental set-up and three possible outcomes. Students were to indicate which one they agreed with and use their observations to explain why.

**Student Work:**

*Student work will be following this electronic submission in the “snail mail”*

**Reflection:**

Complete the Lesson Reflection Form on the following page. Spend time to include details of how the strategy worked and what you may have done differently. This is the portion with will most help your colleagues in implementing their own version of you lesson.**LIMSST Project Literacy Lesson Reflection Form**

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| --- | --- | --- | --- | --- |
| **Name:** | 310 |  | **Date lesson was taught:** | May 3, 2010 |
| **Lesson Title/Topic Areas:** | | | | |
| Density differences can cause formation of layers in fluids | | | | |

**Literacy Strategies Used:**

(Please discuss what literacy strategies you embedded in this lesson. What were your goals in using these strategies? Be specific and use as much detail as possible.)

During this lesson I tried the “silent discussion” strategy for the first time. I used journaling and a lab report as well but I will focus my reflection on the silent discussion since it was my new strategy.

**Student Response to the Lesson:**

(Was the strategy effective? Were students able to read/write as needed in this lesson? What attitudes were displayed? How did specific

students and/or the class do? How did the literacy strategy aid in developing student understanding of the topic? Cite specific evidence from the samples of student work)

The students seemed to like this different strategy. It was their first time with it as well. They were seated in a different arrangement than usual which always throws them off somewhat. They were seated in groups of six students. Friday they were in groups of three to carry out the lab experience.

**Lesson Reflection:**

(What worked well with this lesson? What challenges did you encounter in this lesson? Would you change certain aspects of the lesson or the questions that you asked? How does this influence future lesson planning?)

Things that worked well with this lesson were having six different prompts to work with. For smaller groups I removed a couple of prompts. Having students complete the journaling activity first and seeing the lab set up again also helped students to focus better on the prompts. Students ended up doing some talking while answering the prompts but all talking I overheard was directly related to the prompts and how they thought they were supposed to answer them.

I will definitely use this strategy again. I think it may come in handy with review for our final exam.

**Relationship to Previous Instruction:**

(Have you taught this lesson/topic prior to the LIMSST project? If so, how did your teaching of this lesson differ from what you taught before? How did students’ reactions to this lesson differ?)

I have taught this lesson for the last couple of years, the lab experience part preceding this silent discussion lesson, anyway. Following discussion with Jen and Anne on Friday, April 30 I changed how I “primed” my students prior to allowing them to carry out the lab. I was pleased with those changes, they resulted in better student hypotheses in the lab reports. This lesson was done to allow students more time to reflect on their observations and develop their conclusions.